CORRESPONDENCE/MEMORANDUM

DATE: January 17, 2017 FILE REF: WBIC 447000

TO: Mike Donofrio, Peshtigo Team Fisheries Supervisor
David Boyarski, Eastern District Fisheries Supervisor
White Lake file

FROM: Tammie Paoli

SUBJECT: 2016 White Lake - Spring Electroshocking Survey

White Lake is a 49 acre clear drainage lake in southern Oconto County, approximately 6 miles west of Coleman, WI. The lake has a maximum depth of 49 feet. The approximate 1.6 miles of shoreline is primarily upland hardwoods and is fairly densely developed except for the western lobe which is owned by Oconto County and a portion of the south shoreline in private ownership. Thirty-three docks were counted on a recent aerial photo. The littoral zone is mostly sand. There is a small public access/boat ramp adjacent to the roadway with parking for one trailer on the southeast side of the lake that is overseen by the Town of Bagley. There is a second small access location at the end of St. Bernadette Drive that is owned by the Town of Bagley. An aquatic invasive species survey was conducted by WDNR in June 2012, and no aquatic invasive species were found (Michelle Nault, personal communication).

White Lake is currently managed as a two-story lake, with rainbow trout stocked to provide additional fishing opportunities. In some past years, splake were stocked but in recent years only rainbow trout have been stocked because splake are more expensive and difficult to obtain (Table 1). Fish surveys in 1985 and 1987 found that the lake had a high density of largemouth bass (40/mile), with 94% being less than 14 inches. At that time, there was no minimum size limit for largemouth bass. A 1998 survey found that largemouth bass continued to be the dominant predator fish with an average size of 7.2 inches. However, this small average size may not be entirely representative due to the gear type (fyke nets and gill nets) and time of year (November) of that survey which may have led to missing some of the larger fish. No fish surveys were conducted in the 2000's. Trout regulations for White Lake include a 3 fish daily bag limit and 8 inch size minimum. Standard inland fishing regulations apply for other species.

Table 1. The species, number, size and source of fish stocked into White Lake, 1990 to 2016.

Year	Species	Strain	Age Class	Number Fish Stocked	Avg Fish Length Inches	Source Type
1990	BROOK TROUT	UNSPECIFIED	YEARLING	2000	8	DNR HATCHERY
1991	SPLAKE	UNSPECIFIED	YEARLING	2000	7.1	DNR HATCHERY
1993	SPLAKE	UNSPECIFIED	YEARLING	2000	6.9	DNR HATCHERY
1996	SPLAKE	UNSPECIFIED	YEARLING	2000	6	DNR HATCHERY
1998	SPLAKE	UNSPECIFIED	YEARLING	2000	7.2	DNR HATCHERY
1999	SPLAKE	UNSPECIFIED	YEARLING	2000	7.1	DNR HATCHERY
2000	SPLAKE	UNSPECIFIED	YEARLING	2030	7.9	DNR HATCHERY
2001	SPLAKE	UNSPECIFIED	YEARLING	2000	7.7	DNR HATCHERY (Lakewood)

2001	SPLAKE	APOSTLE ISLAND X ST. CROIX BROOK TROUT	LARGE FINGERLING	1500	7.1	DNR HATCHERY
2002	SPLAKE	APOSTLE ISLAND X ST. CROIX BROOK TROUT	LARGE FINGERLING	2000	6.4	DNR HATCHERY
2004	SPLAKE	APOSTLE ISLAND X ST. CROIX BROOK TROUT	LARGE FINGERLING	2000	5.5	DNR HATCHERY
2006	SPLAKE	APOSTLE ISLAND X ST. CROIX BROOK TROUT	YEARLING	2031	5.8	DNR HATCHERY (Bayfield)
2012	RAINBOW TROUT	ERWIN	YEARLING	421	8.8	DNR HATCHERY (Osceola)
2013	RAINBOW TROUT	ERWIN	YEARLING	536	9.2	DNR HATCHERY (Osceola)
2014	RAINBOW TROUT	ERWIN	YEARLING	495	9.1	DNR HATCHERY (Osceola)
2015	RAINBOW TROUT	ERWIN	YEARLING	533	9.3	DNR HATCHERY (Osceola)
2016	RAINBOW TROUT	ERWIN	YEARLING	473	8.9	DNR HATCHERY (Osceola)

During the evening of June 6, 2016, the entire shoreline (1.6 miles) of White Lake was electroshocked to determine the status of the fish populations of the lake. The survey was conducted following WDNR monitoring protocols for SEII (spring electrofishing 2) surveys for bass/panfish lakes and all species were netted for the entire shoreline. Gamefish and panfish were measured to the nearest tenth inch and rough fish were counted. Aging structures were collected from a subsample of gamefish, yellow perch, and bluegill.

RESULTS:

During the 65 minutes of electroshocking, we captured 94 individual fish representing eight species (Table 2). Largemouth bass and yellow perch dominated the catch.

Table 2. Number of fish, average length, and length range of fish captured during electroshocking the entire shoreline (1.6 miles) of White Lake on June 6, 2016.

*COMMON NAME OF FISH	NUMBER	PERCENT	AVERAGE LENGTH	LENGTH RANGE (inches)
BLUEGILL	12	12.8%	6.2	4.4 - 7.6
GREEN SUNFISH	1	1.1%	4.7	4.7
LARGEMOUTH BASS	47	50.0%	10.5	5.1 - 15.4
NORTHERN PIKE	3	3.2%	17.5	12.8 - 21.2
PUMPKINSEED	8	8.5%	4.9	4.1 - 5.9
ROCK BASS	4	4.3%	5.8	4.2 - 8.6
YELLOW PERCH	17	18.1%	6.3	4.1 - 8.4
YELLOW BULLHEAD	2	2.1%		
Total	**94**	**100.0%**		

Gamefish

The 47 largemouth bass captured ranged in length from 5.1 to 15.4 inches, and had an average length of 10.5 inches. Only five bass were greater than the 14 inch minimum size for harvest. Catch per effort (CPE) was 29/mile.

Aging structures on up to five fish per half inch length bin were collected and the remaining fish measured. Scales were collected on bass below 12 inches, and the second dorsal spine was collected on bass 12 inches and greater. Ages 2-7, and 9-10 were represented, with ages 3, 6, and 7 being most common. Growth rates for bass were slow, with all bass lagging behind the northeast Wisconsin average (Figure 1). It takes an average of 9 years for a largemouth bass to reach the legal size limit of 14 inches in White Lake.

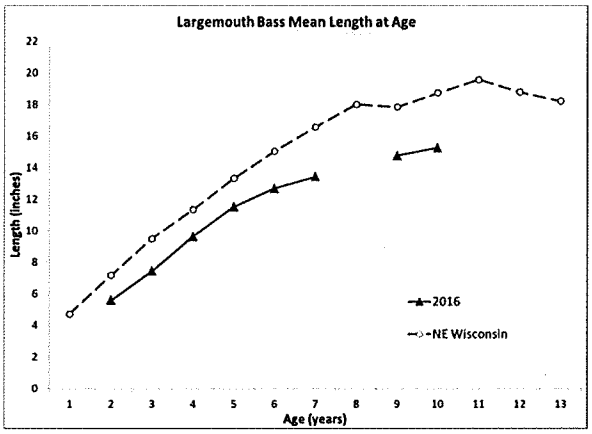

Figure 1. Mean length at age for largemouth bass in White Lake, 2016 compared to other lakes in northeast Wisconsin.

Three northern pike were captured. Growth rates were slower than northeast Wisconsin lakes. The largest pike captured was a 21.2 inch fish, aged at 7 years.

Panfish

Yellow perch were the most common panfish captured, with a CPE of 11/mile and average length of 6.3 inches (Table 2). Scales on up to five fish per half inch length bin were collected and the remaining fish measured. Ages 1-3 and 5 were represented, with age 2 dominating. In contrast to largemouth bass, growth rates for yellow perch and bluegill meet or exceed rates found in other northeast Wisconsin lakes (Figures 2 and 3). However, it should be noted that sample sizes were low.

Other species of fish captured during this survey included low numbers of pumpkinseed sunfish, rock bass, green sunfish, and yellow bullhead. No rainbow trout were captured in this survey, which is only designed to capture fish in shallow warm water and is not suited for surveying fish in the deeper cooler waters of the lake.

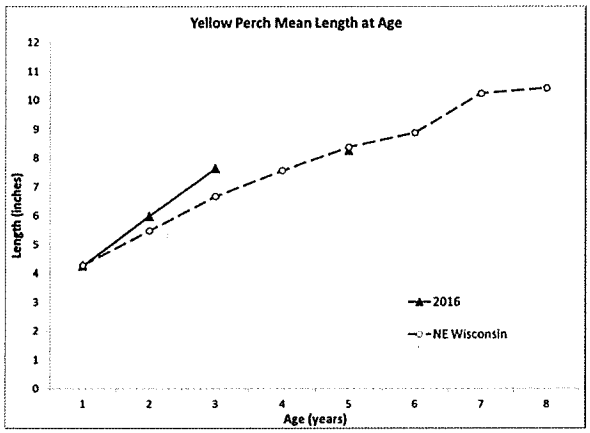

Figure 2. Mean length at age for yellow perch in White Lake, 2016 compared to other lakes in northeast Wisconsin.

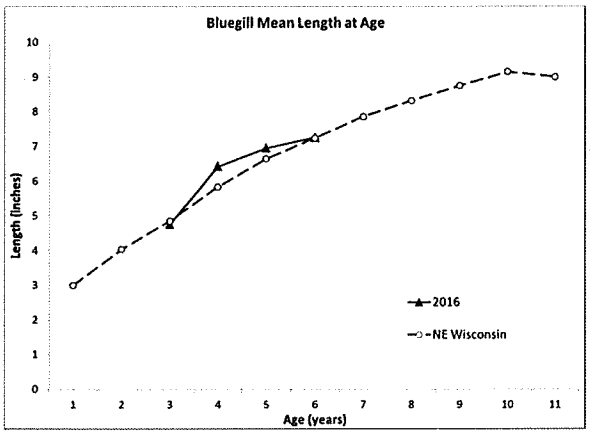

Figure 3. Mean length at age for bluegill in White Lake, 2016 compared to other lakes in northeast Wisconsin.

DISCUSSION AND CONCLUSIONS:

White Lake has a moderately high density of largemouth bass with a CPE of 29/mile. Growth rates of bass are slow possibly a result of intraspecific competition due to their moderately high density. There are few fish over 14 inches available for harvest. If there is adequate local support, a regulation change for largemouth bass from the existing regulation of 5/day, 14 inch minimum size to 5/day, no minimum size is an option. The management goals would be to reduce over-abundant smaller bass, improve bass growth, and increase bass average length. Increased harvest of small bass will hopefully thin the population and increase growth rates of bass.

Yellow perch and bluegill abundance are fairly low and size structure and growth rates are very good for this small lake. Panfish currently show no signs of stunting.

Several anglers have expressed continued interest and success in fishing for trout in White Lake. I recommend continuing to manage White Lake as a two-story lake by submitting annual quotas for trout stocking.

ACKNOWLEDGEMENTS:
Data collection for the 2016 survey was completed by WDNR fisheries staff Tammie Paoli, Ronald Rhode, and Brad Ryan. Fish aging and data entry was completed by Ronald Rhode.